IN THE CLAIMS:

1. (Currently Amended) An implantable medical device, comprising:

sensing means for sensing cardiac activity of a patient;

first detector means for ~~differentiating arrhythmias in response to differences in ventricular rate variabilities in~~ computing a median RR interval in response to a predetermined number of RR intervals associated with the sensed cardiac activity, determining a rate zone in response to the computed median RR interval, determining a variation associated with the determined rate zone, varying a count in response to the rate zone and the variation, computing variation differences between intervals of the predetermined number of intervals, determining whether the number of the computed variation differences that are greater than the determined variation is greater than the count, and outputting a signal in response to the ~~differentiated arrhythmias~~ determined number of the computed variation differences relative to the count; and

trigger means for receiving the signal from the detector means and initiating storage of the sensed cardiac activity.

Claims 2, 3 (Canceled)

4. (Currently Amended) The device of claim ~~2~~ 1, wherein the cardiac activity is determined to be an irregular rhythm in response to the number of ~~beat-to-beat variations that are greater than the predetermined beat-to-beat variation being greater than or equal to a predetermined count associated with the predetermined beat-to-beat variation~~ the computed variation differences that are greater than the determined variation being greater than or equal to the count.

5. (Currently Amended) The device of claim 2, wherein the cardiac activity is determined to be a regular rhythm in response to the number of ~~beat-to-beat variations that are greater than the predetermined beat-to-beat variation being less than a predetermined count associated with the predetermined beat-to-beat variation~~ the computed variation differences that are greater than the determined variation being less than the count.

Claims 6-9 (Canceled)

10. (Currently Amended) The device of claim ~~9~~ 4, wherein the irregular rhythm corresponds to atrial fibrillation.

11. (Currently Amended) A method for discriminating heart rhythms in an implantable medical device, comprising the steps of:

receiving a QRS interval corresponding to the heart rhythm and computing a first predetermined number of RR intervals from the received QRS intervals;

computing a median RR interval corresponding to a predetermined number of the first predetermined number of RR intervals;

determining a rate zone in response to the computed median RR interval;

determining a predetermined beat-to-beat variation corresponding to the ~~computed median RR interval~~ rate zone;

varying a count in response to the rate zone and the predetermined beat-to-beat variation;

computing beat-to-beat variation differences between the first predetermined number of RR intervals;

comparing the beat-to-beat variation differences to the predetermined beat-to-beat variation to determine ~~variations in the beat-to-beat variation differences~~ whether the number of the computed beat-to-beat variation differences greater than the predetermined beat-to-beat variation is greater than the count; and

Identifying the heart rhythm in response to the ~~variations in the~~ number of the computed beat-to-beat variation differences relative to the count.

12. (Original) The method of claim 11, wherein the step of computing beat-to-beat variation differences comprises calculating the difference of the absolute value of RR(n)-RR(n-1), wherein RR(n) and RR(n-1) are consecutive RR intervals of the first predetermined number of RR intervals.

Claim 13 (Canceled)

14. (Currently Amended) The method of claim ~~13~~ 11, wherein the step of identifying comprises the steps of:

identifying the heart rhythm as an irregular rhythm in response to the number of the computed beat-to-beat variation differences greater than the predetermined beat-to-beat variation being greater than or equal to the ~~predetermined~~ count; and

identifying the heart rhythm as a regular rhythm in response to the number of the computed beat-to-beat variation differences greater than the predetermined beat-to-beat variation being less than the ~~predetermined~~ count.

15. (Original) The method of claim 14, wherein the irregular rhythm corresponds to atrial fibrillation.

Claims 16-22 (Canceled)

23. (Currently Amended) A method for discriminating between heart rhythms in an implantable medical device, comprising the steps of:

computing a first predetermined number of RR intervals from received QRS intervals;

computing a median RR interval corresponding to a predetermined number of the first predetermined number of RR intervals;

determining a rate zone in response to the computed median RR interval;

determining a predetermined beat-to-beat variation and ~~a corresponding~~ varying a predetermined count ~~associated with the computed median RR interval~~ in response to the rate zone and the predetermined beat-to-beat variation;

computing beat-to-beat variation differences between the first predetermined number of RR intervals;

determining whether the computed beat-to-beat variation differences are greater than the predetermined beat-to-beat variation; and

determining whether a number of the computed beat-to-beat variation differences that are greater than the predetermined beat-to-beat variation is greater than the predetermined count;

identifying the heart rhythm as an irregular rhythm in response to the number being greater than or equal to the predetermined count; and

identifying the heart rhythm as a regular rhythm in response to the number being less than the predetermined count.

24. (Original) The method of claim 23, wherein the beat-to-beat variation differences are computed by taking the difference of the absolute value of RR(n)-RR(n-1), wherein RR(n) and RR(n-1) are consecutive RR intervals of the first predetermined number of RR intervals, and wherein the irregular rhythm corresponds to atrial fibrillation.

Please **ADD** the following new claims:

25. (New) The device of claim 1, wherein the determined variation is set equal to 50 ms in response to the rate zone being greater than 500 ms, to 25 ms in response to the rate zone being less than or equal to 500 ms and greater than 400 ms, and to 15 ms in response to the rate zone being less than or equal to 400 ms.

26. (New) The device of claim 25, wherein the count is set equal to 8 in response to the rate zone being greater than 400 ms and to 5 in response to the rate zone being less than or equal to 400 ms.

27. (New) The method of claim 11, wherein the predetermined beat-to-beat variation is set equal to 50 ms in response to the rate zone being greater than 500 ms, to 25 ms in response to the rate zone being less than or equal to 500 ms and greater than 400 ms, and to 15 ms in response to the rate zone being less than or equal to 400 ms.

28. (New) The method of claim 27, wherein the count is set equal to 8 in response to the rate zone being greater than 400 ms and to 5 in response to the rate zone being less than or equal to 400 ms.

29. (New) The method of claim 23, wherein the predetermined beat-to-beat variation is set equal to 50 ms in response to the rate zone being greater than 500 ms, to 25 ms in response to the rate zone being less than or equal to 500 ms and greater than 400 ms, and to 15 ms in response to the rate zone being less than or equal to 400 ms.

30. (New) The method of claim 29, wherein the predetermined count is set equal to 8 in response to the rate zone being greater than 400 ms and to 5 in response to the rate zone being less than or equal to 400 ms.